GF28: 2.5V GPIO

Libraries

Name	Process	Form Factor	Silicon proven
RGO_GF28_18V25_SLP_20C	SLP	staggered	yes
RGO_GF28_18V25_SLP_40C	SLP	Inline	yes
RGO_GF28_18V25_HPP_20C	HPP	staggered	4Q11
RGO_GF28_18V25_HPP_40C	HPP	Inline	4Q11

Summary

A full range of power pads is provided to enable the system designer different options for separate core power (VDD and VSS) and separate I/O padring power and ground (DVDD and DVSS). The ability to isolate separate power domains is also provided. In addition, the I/O library has a full complement of cells that provide the user with the ability to isolate analog I/O's and power within the same padring as the digital I/O's.
Includes:

- Programmable GPIO
- Programmable fault-tolerant GPIO
- Input buffer
- Power supplies
- Isolated analog power supplies
- Oscillators
- Full complement of support pads

ESD Protection

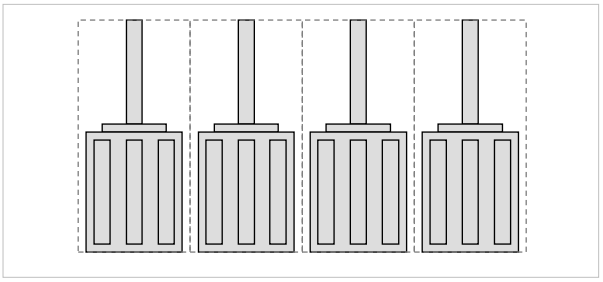
I/O pads are designed with robust ESD protection for all market segments. Passed:

- 2KV ESD Human Body Model (HBM)
- 200 V ESD Machine Model (MM)
- 500 V ESD Charge Device Model (CDM)

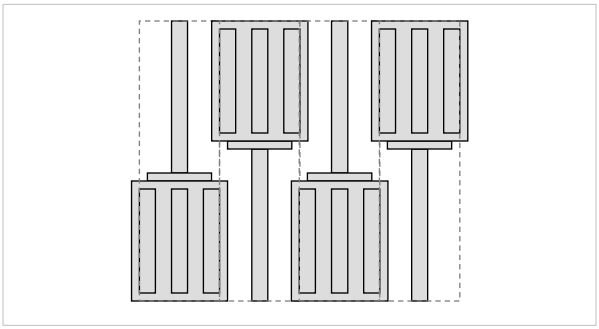
Form factor

Libraries are offered in both inline (core-limited) and staggered (pad limited) configurations.

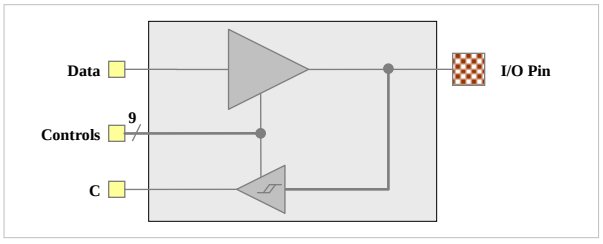
Inline (core-limited) – 40µm x 58µm[*]



Staggered (pad-limited) – 20µm x 117µm[*]



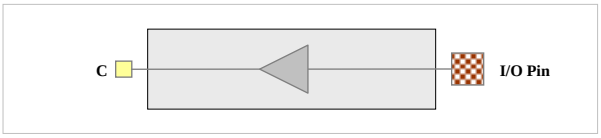
SRx_BI_SDS_25V_STB/ FRx_BI_SDS_25V_STB



Description

SRx_BI_SDS_25V_STB / FRx_BI_SDS_25V_STB are programmable, multi-voltage (1.5V, 1.8V, 2.5V) general purpose, bi-directional I/O buffers with a selectable LVCMOS input or LVCMOS Schmitt trigger input and programmable pull-up / pull-down. In the full-drive mode, this buffer can operate in excess of 100MHz frequency with 15pF external load and 125 MHz with 10pF load, but actual frequency is load and system dependent. A maximum of 200 MHz can be achieved under small capacitive loads.

STx_IN_001_25V_NC



Description

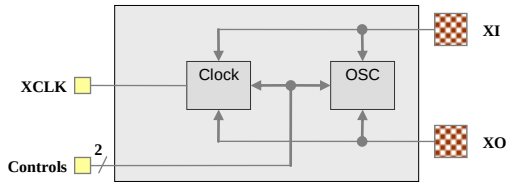
STx_IN_001_25V_NC is an input pad

[*]Pad Sizes

Pad	Width	Height
SRP_BI_SDS_25V_STB	25	128
FRP_BI_SDS_25V_STB	25	140
SRC_BI_SDS_25V_STB	40	82
FRC_BI_SDS_25V_STB	40	92

GF28: 2.5V GPIO

OSx_BI_032_25V



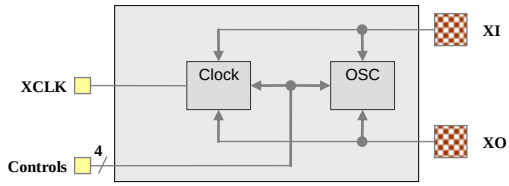
Description

The OSx_BI_032_25V oscillator is designed to generate an asynchronous on-chip clock signal with an appropriate external oscillator crystal. The design has been optimize for low power (1.5 uW typical), stability and minimum jitter using a general purpose 32KHz crystal. The design has been characterized to allow a variation of 4pF to 18pF on each pin.

Key features:

- Very low power (2.6 µW max)
- Bypass mode
- Power down (disable) mode
- Speed-up circuitry for fast startup

OSx_BI_100_25V



Description

The OSx_BI_100_25V oscillator is designed to generate an asynchronous on-chip clock signal with an appropriate external oscillator crystal. The design has been optimize for a wide operating range, stability and minimum jitter using a wide range of industry standard crystals. The design has been characterized to allow a variation of 4pF to 18pF on each pin.

Key features:

- Programmable current for wide frequency range
- Frequency range of 1 MHz to 100 MHz
- DVDD options from 1.5V to 2.5V
- Bypass mode
- Power down (disable) mode

Recommended operating conditions

	Description	Min	Nom	Max	Units
		1.35	1.5	1.65	V
V_{DVDD}	I/O supply voltage	1.62	1.8	1.98	V
		2.25	2.5	2.75	V
T_A	Ambient operating temperature	0	25	100	°C
V_{VDD}	Core supply voltage	0.9	1.0 to 1.1	1.155	V
T_J	Junction temperature	-40	25	125	°C
V_{PAD}	Voltage at PAD	0	-	V_{DVDD}	V
V_{IH}	Input logic high	0.7 * V_{DVDD}		V_{DVDD} + 0.3	V
V_{IL}	Input logic low	V_{DVSS} - 0.3		0.3 * V_{DVDD}	V

Characterization Corners

Nominal VDD	Model	VDD	DVDD[1]	Temperature
1.0-1.1 (SLP)	FF	+5%	+10%	-40°C
	FF	+5%	+10%	125°C
	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C
0.85 (HPP)	FF	+10%	+10%	-40°C
	FF	+10%	+10%	125°C
	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C

[1] DVDD = 1.5, 1.8 and 2.5V

Published by:

Aragio Solutions
2201 K Avenue
Section B Suite 200
Plano, TX 75074-5918
Phone: **(972) 516-0999**
Fax: **(972) 516-0998**
Web: http://www.aragio.com/